

Application No. 10/549,873
Amendment Dated January 31, 2011
Response to Office Action dated September 20, 2010

REMARKS

Claims 1, 12, 21, 24-26, 29-34, 36 and 37 are pending and are at issue herein.

Initially, the indication that claims 13 and 20 are allowed is noted with appreciation.

Claims 1, 12, 21, and 29 stand rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,565,565 to Yuan et al. Claims 30, 33, and 36-37 stand rejected under 35 U.S.C. §103(a) as unpatentable over Yuan et al. Claims 31-32 and 34 stand rejected under 35 U.S.C. §103(a) as unpatentable over Yuan et al. in view WO 2003/024343 to De Coninck et al. Claims 24-26 stand rejected under 35 U.S.C. §103(a) as unpatentable over Yuan et al. in view of U.S. Publication No. 2005/0107788 to Beaurain et al.

The rejections, as they may apply to the claims presented herein, are respectfully traversed.

Claim 1 is amended to clarify that the bottom surface of the cam lock member is formed by a concave surface portion and ramp surface portions on either side of the concave surface portion so that both the concave surface portion and the ramp surface portions face downwardly toward the spinal rod. Amended claim 1 further recites that the upper cam surface of the saddle member is configured to cammingly engage the cam lock member bottom surface to cooperate therewith upon turning of the cam lock member for driving the lower concave surface of the saddle member into tight fitting engagement on the rod surface. Yuan et al. fail to disclose or suggest the cam surface of the cam lock member being a bottom surface that is formed by a concave surface portion and ramp surface portions so that both the concave surface portion and the ramp surface portions face downwardly toward the spinal rod. Further, Yuan et al. fail to disclose or suggest the upper cam surface of the saddle member being configured to cammingly engage the cam lock member bottom surface to cooperate therewith upon turning of the cam lock member for driving the lower concave surface of the saddle member into tight fitting engagement on the rod surface, as required in amended claim 1.

In the Action, the Examiner asserts that the bottom surface 287 of the locking cam 220 includes the surface of the bore 288 along with those of the engagement flanges 284 and 286.

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This is a severely strained interpretation of the annular flat surface shown for the recessed seating surface 287 on the bottom of the locking cap 220 as disclosed by Yuan et al. Yuan et al. nowhere indicate that this seating surface 287 includes the upwardly extending cylindrical surface of the bore 288, nor do they suggest that it includes surfaces of the flanges 284 and 286. Nevertheless, the bottom surface of the cam lock member is further clarified in amended claim 1 herein to call for the bottom surface to be formed by both a concave surface portion and ramp surface portions on either side of the concave surface portion so that both the concave surface portion and the ramp surface portions face downwardly toward the spinal rod. The cylindrical surface of the bore 288 does not face downwardly toward the spinal rod, and the ramp surface portions of the engagement flanges 284 and 286 are not on the bottoms thereof. Yuan et al. explicitly disclose that the “Engagement flange 284 and 286 include inclined radially inwardly sloping camming surfaces for cooperating with complimentary opposed arcuate engagement slots 294 and 296 formed in the opposed side walls 230 and 232 of head portion 222 (see Fig. 13).” (See column 9, line 67 – column 10, line 4). Referring to Fig. 13, it can clearly be seen that corresponding inclined camming surfaces described by Yuan et al. are not formed on the bottom of the cap lock member but rather on the tops of the engagement flanges 284 and 286, and as such face upwardly. Thus, Yuan et al. clearly fail to disclose or suggest a bottom surface of a cam lock member that is formed by a concave surface portion and ramp surface portions on either side of the concave surface portion so that both the concave surface portion and the ramp surface portions face downwardly toward the spinal rod, as required in amended claim 1.

In addition, claim 1 recites that the cam lock member is fixed against translation during turning thereof. In the Action, it is asserted that there is no proof that Yuan et al. teach that rotation of their locking cap 220 will cause it to translate in the head portion 222. The proof for this is in the teachings of Yuan et al. In this regard, Yuan et al. teach that there are complimentary inclined surfaces on the engagement flanges 284 and 286 and in the arcuate engagement slots 294 and 296, and that rotation of the flanges into the slots will cause the camming engagement between flanges and slots so that the locking cap 220 is rotated into a

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locked position (see column 11, lines 10-40). In this manner, the flanges and slots with the cooperating inclined camming surfaces must cause the cap lock member 220 to translate or shift downwardly in the head portion 222 as otherwise there would be no locking action generated by rotation of the locking cap 220. Simply because Yuan et al. fail to specify that the locking cap 220 is translated downwardly in the head portion 222 due to the camming engagement does not change the fact that this occurs based on the structure they teach. To this end, Applicants direct the Examiner's attention to the Background section of the subject application where the operation of the Yuan et al. device is described. Specifically, there it is disclosed that the compression member taught by Yuan et al., i.e., cap lock member 220, operates akin to a threaded system whereby wedge cam surfaces between radial flanges on the compression member and radial recesses in the coupler walls cause the compression member to advance relative to the coupler, i.e., head portion 222. As further discussed in the Background section, this arrangement requires that the head portion 222 have a sufficient axial extent for the advancement of the cam lock member 220 therealong. Since the cam lock member of claim 1 does not utilize camming surfaces between radial flanges thereof and radial recesses in the coupling device, but rather has the cam surface thereof formed on its bottom surface as recited in claim 1, the cam lock member is able to be fixed against translation during turning thereof, as described in claim 1. Accordingly, claim 1, and claim 12 which depends therefrom, are believed allowable over Yuan et al.

Claim 30 is believed allowable for similar reasons to claim 1 in that it recites that the bottom cam surface of the cap member and the upper cam surface of the saddle member are configured to cammingly engage each other so that turning of the cap member toward the locked position causes the saddle member to be driven axially toward the elongate member without requiring axial movement of the cap member. As discussed above, Yuan et al. fail to disclose a cap member having a bottom cam surface or a saddle member having an upper cam surface, and manifestly do not disclose the operation of such a cap member and saddle member where their cam surfaces cammingly engage each other so that turning of the cap member toward the locked

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position causes the saddle member to be driven axially toward the elongate member without requiring axial movement of the cap member. This is in direct contrast to the structure and operation of the locking cap 220 of Yuan et al. including the upper portion 220a and the lower portion 220b thereof that lack corresponding bottom and upper cam surfaces, respectively. Accordingly, claim 30, and claims 31-34, 36 and 37 which depend therefrom, are believed allowable over the relied upon art.

Claim 21 is amended to call for the bottom cam surface of the cam lock member to cammingly engage the rod curved surface to cooperate therewith such that turning of the cam lock member rotates the bottom cam surface on the rod curve surface and causes the rod to be pushed downwardly toward the bone anchor member for being fixed in position relative thereto. Yuan et al. fail to disclose any camming action between a bottom cam surface of the cam lock member and a rod curved surface, as required in amended claim 21.

More specifically, Yuan et al. only teach camming engagement between the engagement flanges 284 and 286 and the engagement slots 294 and 296. There is no teaching or suggestion in Yuan et al. that the hemi-cylindrical channel 299 formed on the bottom of the lower portion 220b be configured to cam against the surface of the spinal rod. Instead, Yuan et al. only disclose that the channel 299 and cylindrical surface of the spinal rod be configured for intimate engagement therebetween. In addition, there is no bottom cam surface on either portion 220a or 220b of the locking cap 220, and certainly not one that cammingly engages the rod curved surface to cooperate therewith such that turning of the cam lock member rotates the bottom cam surface on the rod curved surface and causing the rod to be pushed downwardly toward the bone anchor member, as recited in amended claim 21. Accordingly, claim 21, and claims 24-26 which depend cognately therefrom, are believed allowable over Yuan et al.

Based on the foregoing, reconsideration and allowance of claims 1, 12, 21, 24-26, 29-34, 36 and 37 are respectfully requested.

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The Commissioner is hereby authorized to charge any additional fees which may be required with respect to this communication or credit any overpayment to Deposit Account No. 06-1135.

Respectfully submitted,

By: /Stephen S. Favakeh/
Stephen S. Favakeh
Registration No. 36,798

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FITCH, EVEN, TABIN & FLANNERY
120 South LaSalle Street, Suite 1600
Chicago, Illinois 60603-3406
Telephone (312) 577-7000
Facsimile (312) 577-7007